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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/594,598	09/28/2006	Hirohiko Matsushita	4633-0187PUS1	6837

2292 7590 01/26/2009

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EXAMINER	
WALBERG, TERESA J	

ART UNIT	PAPER NUMBER
3744	

NOTIFICATION DATE	DELIVERY MODE
01/26/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No.	Applicant(s)	
	10/594,598	MATSUSHITA ET AL.	
	Examiner	Art Unit	
	Teresa J. Walberg	3744	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 October 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 September 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maier-Laxhuber et al (5,585,145) in view of Takahashi et al (6,346,298).

Maier-Laxhuber et al disclose a heat exchanger (Fig. 1) having the claimed structure including a plurality of fins (3), an adsorbent (4) capable of adsorbing moisture from the air and desorbing the moisture into the air, the surfaces of the fins (3) being covered with an adsorbent layer (4) containing absorbent and a binder (col. 2, lines 50-54) for supporting the adsorbent on the surfaces of the fins (Fig. 1), a difference in linear thermal expansion coefficient between the fins and the adsorbent layer (col. 4, lines 8-13) being smaller than a difference in linear thermal expansion coefficient between the fins and the adsorbent (col. 2, lines 11-14), the adsorbent layer being configured to follow thermal expansion or contraction of the fins caused by temperature change without falling off the fins (col. 4, lines 8-13).

Maier-Laxhuber et a does not specify that the binder is an organic water based emulsion binder including urethane resin, an acrylic resin, or an ethylene-vinyl acetate copolymer, the thickness and thermal conductivity of the absorbent

layer, the fin pitch, and the air velocity. However, organic water based emulsion binders including urethane resin, acrylic resin, and ethylene-vinyl acetate copolymer are conventional in the art for use as binders and adhesives. It would have been obvious to one of ordinary skill in the art to use urethane resin, acrylic resin, or ethylene-vinyl acetate copolymer as the adhesive in the layers of Maier-Laxhuber et al, since Maier-Laxhuber et al leaves it to one of ordinary skill in the art to determine what adhesive should be used.

It would have been obvious to one of ordinary skill in the art to use any desired thickness and thermal conductivity of the absorbent layer, fin pitch, and air velocity in the heat exchanger of Maier-Laxhuber et al, based on the intended use of the device.

Maier-Laxhuber et al does not disclose the mass ratio between the adsorbent and the binder being varied in the different layers in the thickness direction.

Takahashi et al teaches varying the composition of different layers to match a thermal expansion coefficient of a base layer in a first layer and to have gradually decreasing thermal expansion coefficients in subsequent layers.

It would have been obvious in view of Takahashi et al to vary the compositions of the layers of Maier-Laxhuber et al to vary the thermal expansion coefficients as taught by Takahashi et al, the motivation being to prevent damage to the device by differences in thermal expansion.

While Takahashi et al does not state that the thermal expansion coefficient of the first resin is being substantially equivalent to the thermal expansion coefficient of the foil layer. However, Takahashi et al teaches selecting the thermal expansion coefficient of the first resin layer to be only slightly greater than that of the foil layer and to be less than that of the outer resin layers. Thus the thermal expansion coefficient of the first resin layer is considered to be substantially equivalent to the thermal expansion coefficient of the foil layer, since it has an expansion coefficient closer to that of the foil layer than the other layers do.

3. Applicants' arguments filed 06 October 2008 have been fully considered but they are not persuasive.

The applicants argue that Maier-Laxhuber do not discuss the relationship between thermal expansion coefficients of the parts of the device as required by amended claim 1. In view of this amendment to the claims the Takahashi et al reference has been added to the rejection of claim 1.

The applicants argue that Takahashi et al does not disclose the thermal expansion coefficient of the first resin layer being substantially equivalent to the thermal expansion coefficient of the foil layer, but instead shows it being greater. However, Takahashi et al teaches selecting the thermal expansion coefficient of the first resin layer to be only slightly greater than that of the foil layer and to be less than that of the outer resin layers. Thus the thermal expansion coefficient of

the first resin layer is considered to be substantially equivalent to the thermal expansion coefficient of the foil layer, since it has an expansion coefficient closer to that of the foil layer than the other layers do.

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Teresa J. Walberg whose telephone number is 571-272-4790. The examiner can normally be reached on M-F 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on 571-272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Teresa J. Walberg/
Primary Examiner, Art Unit 3744

/TW/